

Dual Shield 7100 Ultra

FCAW wire for mild steel and 490N/mm² class high tensile steel. Dual Shield 7100Ultra is a multi-purpose all position flux cored wire for use with CO₂ or CO₂ /Ar mixed gas.

Specifications	
Classifications	ASME SFA 5.36 ASME SFA 5.20 AWS A5.20 : E71T-9C-DH8 AWS A5.20 : E71T-1M-DH8 AWS A5.36 : E71T1-M21-CS1-DH8 AWS A5.36 : E71T1-C1A2-CS1-DH8 AWS A5.20 : E71T-1C-DH8 AWS A5.20 : E71T-9M-DH8
Approvals	BV DNV-GL LR ABS CWB : CSA W48; E491T-9-H8, E491T-9M-H8

Approvals are based on factory location. Please contact ESAB for more information.

Welding Current	DC+
Alloy Type	C Mn

Typical Tensile Properties			
Condition	Yield Strength	Tensile Strength	Elongation
100% CO₂			
As Welded	515 MPa (75 ksi)	585 MPa (85 ksi)	26 %
75% Ar - 25% CO₂			
As Welded	540 MPa (78 ksi)	605 MPa (88 ksi)	26 %

Typical Charpy V-Notch Properties		
Condition	Testing Temperature	Impact Value
100% CO₂		
As Welded	-29 °C (-20 °F)	34 J (25 ft-lb)
As Welded	-18 °C (0 °F)	58 J (43 ft-lb)
75% Ar - 25% CO₂		
As Welded	-29 °C (-20 °F)	47 J (35 ft-lb)
As Welded	-18 °C (0 °F)	57 J (42 ft-lb)

Typical Weld Metal Analysis %				
C	Mn	Si	S	P
75% Ar - 25% CO₂				
0.03	1.6	0.6	0.012	0.010
100% CO₂				
0.02	1.3	0.5	0.013	0.010

Deposition Data					
Diameter	Current	Voltage	Wire Feed Speed	Deposition Efficiency (%)	Deposition Rate
100% CO₂					
0.9 mm (.035 in.)	105 A	24 V	635 cm/min (250 in./min)	86 %	1.3 kg/h (2.8 lbs/h)

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Deposition Data					
Diameter	Current	Voltage	Wire Feed Speed	Deposition Efficiency (%)	Deposition Rate
1.6 mm (1/16 in.)	352 A	27 V	889 cm/min (350 in./min)	88 %	6.0 kg/h (13.1 lbs/h)
0.9 mm (.035 in.)	185 A	27 V	1397 cm/min (550 in./min)	88 %	2.9 kg/h (6.3 lbs/h)
1.6 mm (1/16 in.)	382 A	28.5 V	1016 cm/min (400 in./min)	87 %	6.7 kg/h (14.7 lbs/h)
1.2 mm (.045 in.)	230 A	27 V	1016 cm/min (400 in./min)	82 %	3.3 kg/h (7.4 lbs/h)
1.4 mm (.052 in.)	300 A	27 V	1016 cm/min (400 in./min)	83 %	4.7 kg/h (10.3 lbs/h)
1.6 mm (1/16 in.)	195 A	24 V	381 cm/min (150 in./min)	85 %	2.5 kg/h (5.5 lbs/h)
1.6 mm (1/16 in.)	290 A	25.5 V	635 cm/min (250 in./min)	87 %	4.2 kg/h (9.2 lbs/h)
1.2 mm (.045 in.)	275 A	28.5 V	1270 cm/min (500 in./min)	83 %	4.4 kg/h (9.6 lbs/h)
1.4 mm (.052 in.)	150 A	23.5 V	381 cm/min (150 in./min)	76 %	1.6 kg/h (3.6 lbs/h)
1.6 mm (1/16 in.)	325 A	26.5 V	762 cm/min (300 in./min)	86 %	4.9 kg/h (10.9 lbs/h)
1.4 mm (.052 in.)	250 A	25.5 V	762 cm/min (300 in./min)	82 %	3.5 kg/h (7.7 lbs/h)
1.4 mm (.052 in.)	190 A	24 V	508 cm/min (200 in./min)	78 %	2.2 kg/h (4.9 lbs/h)
0.9 mm (.035 in.)	165 A	25.5 V	1206.5 cm/min (475 in./min)	88 %	2.5 kg/h (5.5 lbs/h)
1.2 mm (.045 in.)	192 A	25.5 V	762 cm/min (300 in./min)	79 %	2.5 kg/h (5.5 lbs/h)
0.9 mm (.035 in.)	140 A	25 V	1016 cm/min (400 in./min)	87 %	2.1 kg/h (4.6 lbs/h)

Recommended Welding Parameters				
Current	Wire Diameter	TTW Dist.	Voltage	Wire Feed Speed
100% CO₂				
290-350 A	1.4 mm (.052 in.)	19-25.4 mm (3/4-1 in.)	29-31 V	864-1194 cm/min (340-470 in./min)
135-250 A	1.4 mm (.052 in.)	12.7-16 mm (1/2-5/8 in.)	22-26 V	279-584 cm/min (110-230 in./min)
285-340 A	1.6 mm (1/16 in.)	19-25.4 mm (3/4-1 in.)	27-30 V	508-762 cm/min (200-300 in./min)
340-400 A	1.6 mm (1/16 in.)	25.4-31.75 mm (1-1.25 in.)	28-32 V	762-1067 cm/min (300-420 in./min)
185-285 A	1.6 mm (1/16 in.)	16-19 mm (5/8-3/4 in.)	24-28 V	279-508 cm/min (110-200 in./min)
110-135 A	0.9 mm (.035 in.)	9.5-12.7 mm (3/8-1/2 in.)	23-25 V	559-838 cm/min (220-330 in./min)
270-345 A	1.6 mm (1/16 in.)	19-25.4 mm (3/4-1 in.)	27-30 V	508-762 cm/min (200-300 in./min)
230-265 A	1.2 mm (.045 in.)	19-25.4 mm (3/4-1 in.)	26-30 V	965-1321 cm/min (380-520 in./min)

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Recommended Welding Parameters

Current	Wire Diameter	TTW Dist.	Voltage	Wire Feed Speed
125-235 A	1.4 mm (.052 in.)	12.7-16 mm (1/2-5/8 in.)	23-26 V	279-584 cm/min (110-230 in./min)
160-185 A	0.9 mm (.035 in.)	16-19 mm (5/8-3/4 in.)	26-30 V	1118-1397 cm/min (440-550 in./min)
200-225 A	1.2 mm (.045 in.)	12.7-19 mm (1/2-3/4 in.)	24-27 V	660-965 cm/min (260-380 in./min)
295-355 A	1.4 mm (.052 in.)	19-25.4 mm (3/4-1 in.)	27-31 V	864-1194 cm/min (340-470 in./min)
225-265 A	1.2 mm (.045 in.)	19-25.4 mm (3/4-1 in.)	27-29 V	965-1321 cm/min (380-520 in./min)
165-270 A	1.6 mm (1/16 in.)	16-19 mm (5/8-3/4 in.)	25-28 V	279-508 cm/min (110-200 in./min)
205-230 A	1.2 mm (.045 in.)	12.7-19 mm (1/2-3/4 in.)	25-27 V	660-965 cm/min (260-380 in./min)
130-200 A	1.2 mm (.045 in.)	9.5-12.7 mm (3/8-1/2 in.)	22-26 V	381-660 cm/min (150-260 in./min)
235-290 A	1.4 mm (.052 in.)	16-19 mm (5/8-3/4 in.)	25-29 V	584-864 cm/min (230-340 in./min)
165-190 A	0.9 mm (.035 in.)	16-19 mm (5/8-3/4 in.)	25-30 V	1118-1397 cm/min (440-550 in./min)
135-160 A	0.9 mm (.035 in.)	12.7-16 mm (1/2-5/8 in.)	24-28 V	838-1118 cm/min (330-440 in./min)
115-145 A	0.9 mm (.035 in.)	9.5-12.7 mm (3/8-1/2 in.)	23-25 V	1118-1397 cm/min (440-550 in./min)
250-295 A	1.4 mm (.052 in.)	16-19 mm (5/8-3/4 in.)	25-29 V	584-864 cm/min (230-340 in./min)
145-165 A	0.9 mm (.035 in.)	12.7-16 mm (1/2-5/8 in.)	24-27 V	1118-1397 cm/min (440-550 in./min)
135-205 A	1.2 mm (.045 in.)	9.5-12.7 mm (3/8-1/2 in.)	23-26 V	381-660 cm/min (150-260 in./min)
345-415 A	1.6 mm (1/16 in.)	25.4-31.75 mm (1-1.25 in.)	28-32 V	762-1067 cm/min (300-420 in./min)
75% Ar - 25% CO₂				
290-350 A	1.4 mm (.052 in.)	19-25.4 mm (3/4-1 in.)	29-31 V	864-1194 cm/min (340-470 in./min)
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230-265 A	1.2 mm (.045 in.)	19-25.4 mm (3/4-1 in.)	26-30 V	965-1321 cm/min (380-520 in./min)
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